

Notice of Allowability

Application No.

10/797,961

Examiner

Russell Frejd

Applicant(s)

GEEHAN ET AL.

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment received 27 June 2007.
2. ☒ The allowed claim(s) is/are 1-4, 7-13, 16, 18-25 and 30-45.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

Russell Frejd
RUSSELL FREJD
PRIMARY EXAMINER

In re Application of: Geehan

Allowance of Application # 10/797,961

1. The following communication is in response to applicant's Amendment received 27-June-2007. Claims 1-4, 7-13, 16, 18-25, and 30-45 are pending in the application. Claims 5, 6, 14, 15, 17, and 26-29 are canceled.

Examiner's Amendment

2. An Examiner's Amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 C.F.R. 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the Issue Fee. Authorization for this Examiner's Amendment was given by Jeffrey Bergman (Reg. No. 45,925) on 6-September-2007.

2.1 In the Claims:

- | | | |
|----------|--------|--|
| Claim 2 | line 2 | Change "domain disposal" to --disposal domain--. |
| Claim 3 | line 2 | Change "domain disposal" to --disposal domain--. |
| Claim 7 | line 2 | Change a disposal domain" to --at least one disposal domain--. |
| Claim 8 | line 2 | Change a disposal domain" to --at least one disposal domain--. |
| Claim 9 | line 2 | Change "comprises a disposal domain parameter and where the disposal domain" to --comprises at least one disposal domain parameter and where the at least one disposal domain--. |
| Claim 13 | line 1 | Change "the probability" to --the at least one probability--. |
| Claim 18 | line 2 | After "comprising:" insert |

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--a processor;

a memory;--.

- Claim 21 line 3 Change "domain parameter" to --domain operation parameter--.
- Claim 22 line 1 Change "component" to --module--.
- Claim 23 line 1 Change "component" to --module--.
- Claim 25 line 1 Delete "value".
- Claim 30 line 1 Change "component" to --module--.
- Claim 31 line 1 Change "component" to --module--.
- Claim 33 line 1 Change "component" to --module--.
- Claim 34 line 1 Change "component" to --module--.
- Claim 35 line 3 Change "cutting" to --cuttings--.
- Claim 36 line 1 Change "claim 1" to --claim 18--.
- line 3 Change "cutting" to --cuttings--.
- Claim 39 line 11 Change "parameter the cuttings" to --parameter for the cuttings--.
- Claim 40 line 3 Change "domain disposal" to --disposal domain--.
- Claim 41 line 3 Change "domain disposal" to --disposal domain--.
- Claim 43 line 4 Change "cutting" to --cuttings--.
- Claim 45 line 2 Change "wherein the at least one disposal domain" to --wherein the at
 least one disposal domain operation--.

Reasons for Allowance

3. The following is an Examiner's Statement of Reasons for the indication of allowable subject matter.

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3.1 The improvement of the present invention comprises, a method and system for determining an operational parameter for a cuttings injection process at a site, using the following:

- a fracturing simulation using a site specific datum to obtain a fracturing result;
- a probability of creating a new fracture in a formation at the site calculated from the fracturing result and a probability model;
- a plurality of fracturing simulations using the probability and a distribution associated with the probability to obtain disposal domain information; and
- generating the operational parameter for the cuttings injections process at the site using the disposal domain information.

This patentable distinction is included in each of the independent claims, nos. 1, 18 and 39.

3.2 The instant application is directed to a non-obvious improvement over the information described in the articles authored by Abou-Sayed et al., entitled *Design Considerations in Drill Cuttings Re-Injection Through Downhole Fracturing*; and Keck, entitled *Drill Cuttings Injection: A Review of Major Operations and Technical Issues*.

Abou-Sayed et al. disclose drill cuttings re-injection engineering design and assurance processes for the downhole disposal of mud and cuttings waste through hydraulic fracturing; including design guidelines for establishing injection parameters and operational procedures, such as: slurry rheology requirement, injection rate, batch size, shut-in time required for fracture

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to close on cuttings, injection equipment, well design requirements, and disposal capacity requirements.

Keck discloses an overview of cuttings injection operations for both small and large-scale injection systems, including an overview of hydraulic fracturing and new injection zone mechanics theories developed for waste disposal, in an effort to answer two critical engineering questions for injection applications: 1) where does the waste go, and 2) how much can be safely injected into a well?

3.3 The art of record, either individually or in combination, fails to teach, suggest, or render obvious the method for determining an operational parameter for a cuttings injection process at a site. In view of the foregoing, the claims of the present application are found to be patentable over the prior art.

Response Guidelines

4. Any comments considered necessary by applicant **MUST** be submitted no later than the payment of the Issue Fee and, to avoid processing delays, should preferably accompany the Issue Fee. Such submissions should clearly be labeled "Comments on Statement of Reasons for Allowance".

4.1 Any response to the Examiner in regard to this allowance should be

directed to: Russell Frejd, telephone number (571) 272-3779, Monday-Friday from 0530 to 1400 ET, or the examiner's supervisor, Kamini Shah, telephone number (571) 272-2279. Inquires of a general nature or relating to the status of this application should be directed to the TC2100

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Group Receptionist (571) 272-2100.

mailed to: Commissioner of Patents and Trademarks
P.O. Box 1450, Alexandria, VA 22313-1450

or faxed to: (571) 273-8300

*Hand-delivered responses should be brought to the Customer Service Window, Randolph Building, 401
Dulany Street, Alexandria, VA, 22314.*

Date: 16-September-2007

/Russell Frejd/
Primary Examiner AU 2128

**RUSSELL FREJD
PRIMARY EXAMINER**